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Microbiological survey of acute epididymitis

D A HAWKINS, D TAYLOR-ROBINSON, B J THOMAS, AND J R W HARRIS

From the Division of Sexually Transmitted Diseases, MRC Clinical Research Centre, Harrow, and the Praed Street Clinic, St Mary's Hospital, London

SUMMARY In an 18 month period, 198 men presented with a painful, swollen, and tender epididymis or testicular or scrotal pain. Fifty were excluded from analysis because of prior antibiotic treatment or a history of the disease, or both. Of the remaining patients, epididymitis was not diagnosed in 108, though 23 (21%) of them had urethritis. Thus 40 men were seen who had acute unilateral epididymitis. Of the 27 less than 35 years old, 13 (48%) had a urethral chlamydial infection and two others a gonococcal infection. Sexually transmitted micro-organisms were not confined, however, to the younger age group, though only two (15%) of 13 men who were 35 years or older had a urethral chlamydial infection. Most, that is 29 (73%), of the patients with acute epididymitis also had urethritis when first seen. Urethral micro-organisms were found most often in 13 men who had severe epididymitis, chlamydial infection occurring in eight (62%) of the patients in this category.

Introduction

It seems reasonable to believe that infectious agents are often the cause of acute epididymitis and that sexually transmitted micro-organisms should rank high among them. A major study in which *Chlamydia trachomatis* organisms (chlamydiae), among others, were sought and implicated was in urological practice, though 13 of 17 chlamydia positive patients were referred from sexually transmitted disease (STD) clinics.[1 2] This apart, no studies of epididymitis have been reported in which chlamydiae have been sought. Because of this and in view of the genital nature of the disease, we undertook a clinical and microbiological study of men presenting to a STD clinic with epididymitis, comparing them with men who had scrotal pain or discomfort but without clinical signs of epididymitis.

Patients and methods

To obtain a suitable cohort of patients with acute epididymitis, all patients seen in the clinic from April 1984 to October 1985 with epididymitis or testicular or scrotal pain of any severity, or both, were investigated in the following way irrespective of other symptoms and signs. Patients were examined clinically and a smear for Gram staining and light microscopy was prepared routinely from a urethral specimen taken with a plastic loop; the same specimen was used for subsequent culture for *Neisseria gonorrhoeae*. An endourethral cotton tipped swab (MW 142; Medical Wire and Equipment Company, Corsham, Wiltshire) was then inserted 2-3 cm into the urethra to take a specimen for fluorescent chlamydial monoclonal antibody staining (MicroTrak) as described previously.[3] After these specimens had been taken a midstream urine sample was obtained and examined microscopically and by routine bacteriological procedures. Epididymal aspiration was not undertaken. Patients with a history of epididymitis were excluded from analysis as were those who had taken antibiotics in the previous three months.

Patients were treated with doxycycline 100 mg twice a day for at least two weeks. Those with associated gonococcal urethritis, however, also received a single 2 g dose of spectinomycin intramuscularly. When a urinary tract infection was suspected clinically, a standard course of cotrimoxazole or amoxycillin was given.

Results

In the 18 month period, 198 patients (age range 19-73

Address for reprints: Dr D Taylor-Robinson, Division of Sexually Transmitted Diseases, MRC Clinical Research Centre, Watford Road, Harrow, Middlesex HA1 3UJ

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years) presented with a painful, swollen, and tender epididymis or testicular or scrotal pain and their clinical notes were reviewed retrospectively. Fifty were excluded from analysis for the reasons indicated. Of the remaining 148 patients, 40 had symptoms and clinical signs indicative of acute unilateral epididymitis. Thirteen of these patients had severe disease defined as pronounced swelling and tenderness of the epididymis with consequent difficulty in walking or continuing work or necessitating admission to hospital. Twenty seven patients had definite but more moderate symptoms and signs. The other 108 patients did not have acute epdidymitis. Many of them had no apparent abnormality, some had varicoceles, a few had cysts, and two had testicular swelling and were referred for urological examination.

PATIENTS WITH EPIDIDYMITIS (TABLE)

Association of micro-organism with patients' age

Twenty seven of the 40 patients with acute epididymitis were aged under 35, and 13 (48%) of these had coexistent chlamydial infection of the urethra. A further two (7%) had gonococcal urethritis. No patient had a dual urethral infection with *C trachomatis* and *N gonorrhoeae*, though one had asymptomatic chlamydial urethritis and rectal gonorrhoea. None had a urinary tract infection. In the remaining 12 patients (44%), none of the aforementioned micro-organisms could be found.

Thirteen patients were aged 35 or older. Two (15%) of these had a *C trachomatis* urethral infection, three (23%) gonococcal urethritis, three (23%) a coliform infection of the urinary tract, and five (39%) "idiopathic" disease.

Association of micro-organisms with severity of disease

Of 13 patients who had severe disease, eight (62%) had urethral specimens yielding *C trachomatis*, and two (15%) yielded *N gonorrhoeae*. Two men (15%) had a urinary tract coliform infection. There was, therefore, only one patient (8%) for whom potential aetiological agents could not be found. In contrast, of 27 patients who had more moderate disease, only seven (26%) had urethral specimens positive for chlamydiae, and three (11%) for gonococci, with one (4%) having a urinary tract coliform infection. There were, therefore, 16 men (59%) in whom these micro-organisms could not be detected.

Coexistent urethritis

Twenty nine (73%) of the 40 patients with acute epididymitis also had urethritis when first seen. The remaining 11 (27%) patients had no detectable urethritis, but two were chlamydia positive and one had a urinary tract infection.

Response to treatment

All patients with epididymitis associated with gonococcal or coliform infections responded to specific antimicrobial treatment and the respective micro-organisms were eradicated from the urethra. All of the remaining patients, whether chlamydia positive or not, responded to tetracycline treatment. Most patients responded rapidly, within one to two weeks, but six men who had moderate chlamydia negative disease showed more gradual improvement over several weeks. Nine men defaulted.

PATIENTS WITHOUT EPIDIDYMITIS

Of 108 patients without clinical signs of epididymitis, 23 (21%) were found to have urethritis. Four of the latter had urethral specimens positive for *C trachomatis*, two for *N gonorrhoeae*, and one had a coliform infection of the urinary tract. Thus in this group, four (20%) of 20 patients with non-gonococcal urethritis had a chlamydial infection; three of the chlamydia negative patients had had tetracycline treatment four to five months previously.

TABLE *Micro-organisms isolated from the urethra of 40 men with acute epididymitis*

	No (%) of patients in indicated age group yielding micro-organism:	
Micro-organism isolated	*< 35 years (n = 27)*	*≥ 35 years (n = 13)*
Chlamydia trachomatis	13 (48)	2 (15)
Neisseria gonorrhoeae	2 (7)	3 (23)
N gonorrhoeae and C trachomatis	0	0
Coliforms	0	3 (23)
None	12 (44)	5 (39)

Discussion

It is apparent that micro-organisms potentially responsible for causing acute epididymitis can usually be found in the urethra of patients presenting with such disease to this London STD clinic. As in a previous study,[1 2] sexually transmissible agents, particularly chlamydiae, predominated in the arbitrarily defined younger age group (less than 35 years). Furthermore, even in the older patients in this population, sexually

transmitted micro-organisms were those most often associated with epididymitis, *C trachomatis* or *N gonorrhoeae* being found in 38% of them. Urinary tract infection, however, also assumed importance (23% of cases) in the older age group, whereas such infections were not found in patients aged under 35.

Assessing the aetiological role of micro-organisms in epididymitis is a problem akin to that encountered in salpingitis. Micro-organisms detected in the cervix are not necessarily the cause of the upper tract disease. Similarly, micro-organisms detected in the urethra may not be responsible for epididymitis, though it may seem reasonable to assume that this is so. Indeed, relevant to pathogenicity is the fact that we found urethral micro-organisms particularly in patients who had the most pronounced symptoms and signs, *C trachomatis* urethral infection occurring in most (62%) of the patients judged clinically to have the most severe disease. For greater aetiological certainty, however, more complex studies requiring examination not only of urethral specimens but also of epididymal aspirates are needed. Furthermore, though the micro-organisms we detected could account potentially for almost all of the severe disease, a more comprehensive microbiological assessment would seem advisable as *Mycoplasma hominis* and corynebacteria have been recovered from epididymal aspirates.[4 5]

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